Algebra/Topology Seminar

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THE SIGMA CONJECTURE FOR SOLVABLE S-ARITHMETIC GROUPS AND MORSE THEORY ON EUCLIDEAN BUILDINGS

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1:15 p.m. in ES-143

ABSTRACT. Given a finitely generated group G, the Sigma invariants of G consist of geometrically defined subsets $\Sigma^k(G)$ of the set $S(G)$ of all characters $\chi: G \to \mathbb{R}$ of G. These invariants where introduced independently by Bieri–Strebel and Neumann for $k = 1$ and generalized by Bieri–Renz to the general case in the late 80's in order to determine the finiteness properties of all subgroups H of G that contain the commutator subgroup $[G, G]$. In this talk we determine the Sigma invariants of certain S-arithmetic subgroups of Borel groups in Chevalley groups. In particular we will determine the finiteness properties of every subgroup G of the group of upper triangular matrices $B_n(\mathbb{Z}[1/p]) < SL_n(\mathbb{Z}[1/p])$ that contains the group $U_n(\mathbb{Z}[1/p])$ of unipotent matrices where p is any sufficiently large prime number.